

ABSTRACT OF THE DISCLOSURE

A programmable waveform generator forms a composite transmission signal containing multiple information signals using a reduced number of hardware components to modulate the phase and amplitude of the carrier signal. A signal generator develops baseband direct sequence spread spectrum digital bit streams from corresponding input data signals. The values of the digital bit streams are used to simultaneously control states of phase modulators and variable attenuators which modulate the phase and amplitude of the in-phase and quadrature carrier components. The programmable waveform generator can be used to implement an interplex modulator producing a constant-envelope composite signal with fewer phase modulators and attenuators.